

ABSTRACT

A dispersive spectrometer comprising a primary lens that images a scene onto a slit through which light from a thin portion of the scene passes to a collimating lens. A grism is optically coupled to the collimating lens. The grism includes a diffractive element and is disposed such that light from the thin portion of the scene has an angle of incidence upon the diffractive element that is greater than one-third of the critical angle at the surface of the grism. The diffractive element disperses light from the thin portion of the scene in a direction that is perpendicular to the major dimension of the thin portion of the scene. A focusing lens is optically coupled to the grism to receive dispersed light from the thin portion of the scene. The focusing lens defines a focal plane onto which light from the thin slice of the scene is imaged.